

## CLAIMS

What is claimed is:

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Q<sup>2</sup>?
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1. In a computer system, a method saving a running software application for execution at a later time, the application being associated with a process having a state and an environment, comprising the steps of:
- (a) associating a unique identifier with a running software application to be saved;
  - (b) virtualizing the process environment associated with said running software application;
  - (c) recording process events that change the state of the process;
  - 10 (d) saving process state in the form of a snapshot image; and
  - (e) saving shared resource state relevant to said snapshot image with said snapshot image.
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2. The method of claim 1, further including the step of saving modified memory pages relevant to said snapshot image with said snapshot image.
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3. The method of claim 1, further including the step of saving states associated multiple threads relevant to said snapshot image.
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4. A method of restoring to a running state a software application stored in a running state with necessary processes, process state information, memory information, and dependency information, comprising the steps of:
- (a) matching said stored software application with an application identifier;
  - (b) locating all stored processes stored with said software application;
  - (c) recreating global/shared state;
  - (d) creating a process that inherits the global/shared state;
  - (e) isolating the global/shared state process from other processes;
  - (f) For each type of state stored within the stored software application, bind system state to a virtual definition if the state is virtualized, reconnect the state to any processes the state is shared
  - 30 with, and place the state in synchronized wait;

- (g) removing traces and states induced; and
- (h) performing a synchronized resume of all processes.

5. A computer program product, which, when executed by a computer, saves a running software application for execution at a later time, the application being associated with a process having a state and an environment, by performing the steps of:

- (a) associating a unique identifier with a running software application to be saved;
- (b) virtualizing the process environment associated with said running software application;
- (c) recording process events that change the state of the process;
- (d) saving process state in the form of a snapshot image; and
- (e) saving shared resource state relevant to said snapshot image with said snapshot image.

6. A computer program product, which, when executed on a computer, restores to a running state a software application stored in a running state with necessary processes, process state information, memory information, and dependency information, executing the steps of:

- (a) matching said stored software application with an application identifier;
- (b) locating all stored processes stored with said software application;
- (c) recreating global/shared state;
- (d) creating a process that inherits the global/shared state;
- (e) isolating the global/shared state process from other processes;
- (f) For each type of state stored within the stored software application, bind system state to a virtual definition if the state is virtualized, reconnect the state to any processes the state is shared with, and place the state in synchronized wait;
- (g) removing traces and states induced; and
- (h) performing a synchronized resume of all processes.

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